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State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Marie Pittignano
Manager, Environmental Remediation
Crompton Corporation
One American Lane
Greenwich, CT 06831-2559

JUL 14 2000

Re: Geovation Consultants, Inc. Proposed Anaerobic Bioremediation Pilot Study
(Letter Dated June 27, 2000)
CKWitco/Witco Perth Amboy Plant
1000 Convery Boulevard
Perth Amboy, Middlesex County, New Jersey

Dear Ms. Pittignano:

The New Jersey Department of Environmental Protection (NJDEP or Department) completed a review of the above-referenced document for the Crompton Corporation's (formerly CKWitco/Witco) Perth Amboy Plant. In the June 27, 2000 letter, Crompton Corporation requests Departmental approval to conduct a short-term, enhanced natural attenuation, bioremediation pilot study to hasten the remediation of chlorinated volatile organic compound (VOC) contamination present in groundwater at the subject site. Conditional approval of the July 1999 Remedial Action Report Addendum for the site which proposes natural attenuation in combination with establishment of a groundwater Classification Exception Area (CEA) will be forthcoming in an NJDEP response letter. The proposed pilot study is therefore acceptable with the requirements and conditions detailed below.

It is proposed that on behalf of Crompton Corporation, Geovation will introduce biological nutrients into impacted monitoring well MW-1S while monitoring contaminant concentrations and biological indicators in well MW-1S and downgradient well MW-8S as a pilot study. In addition, aqueous nitrate salts will be amended to groundwater in an in-situ treatment area to enhance anaerobic processes, particularly anaerobic dehalogenation of chlorinated aliphatic compounds (i.e., trichloroethylene was reported at 280 ug/l at well MW-1S in July 1998). Nitrate is a listed groundwater contaminant and by design, nitrate concentrations will exceed the Groundwater Quality Criteria (GWQC) of 10,000 ug/l in the treatment area. A permit-by-rule is therefore appropriate prior to initiating the pilot test activities.

Permit-By Rule

The Department has determined that a permit-by-rule is required for implementation of the proposed pilot study. Crompton proposes the following two-step, batch-treatment technology for groundwater:

- Introduction of proprietary, anaerobic, bioremediation nutrient solution into impacted well MW-1S.

- Installation of an anaerobic bioremediation system (ABS) adjacent to well MW-1S.

- Use of the ABS to provide automated delivery of additional nutrients over a subsequent four to six week period.

- Groundwater monitoring for contaminants and biological indicators in well MW-1S and downgradient well MW-8S.

- Preparation of a report discussing the results and findings of the pilot study. This report will be submitted to the Department for review.

The New Jersey Pollutant Discharge Elimination System (NJPDES) regulations, specifically N.J.A.C. 7:14A-7.5 allows the Department to issue permit-by-rule authorizations for pilot tests and Class V Underground Injection Control (UIC) systems. Therefore, the Department hereby authorizes the short-term discharge of the treatment technology, as described above, to be injected into the groundwater at the site. This approval is valid only when all of the following conditions are met.

1. The treatment process/discharge will not result in a discharge to surface water or affect surface water supplies.

2. The duration of the discharge shall not exceed **180 days**.

3. Groundwater samples shall be collected from monitoring wells MW-1S and MW-8S prior to application of the treatment. In order to establish existing baseline conditions, the samples shall be analyzed for (i) chemical parameters including total VOCs; (ii) biogeochemical parameters including pH, redox potential (Eh), dissolved oxygen (DO), nitrate, nitrite, ammonium, orthophosphate, complex phosphate, sulfide, bicarbonate, iron and manganese; and (iii) microbiological parameters including bacterial populations, size and morphology, as proposed.

4. At a minimum, groundwater sampling of monitoring wells MW-1S and MW-8S shall be conducted monthly for the parameters listed in previous Condition No. 3. Sampling frequency shall be increased as necessary during the pilot study to effectively demonstrate the anticipated beneficial impacts to the contaminated groundwater at the site.

5. A Pilot Study Summary Report shall be submitted to the Department within 45 days following completion of the bioremediation treatability study. This summary report shall include the results of the treatability study including the exact dates when the treatment occurred and the associated groundwater monitoring data.

6. The applicant, prior to discharging under the permit-by-rule, shall obtain all necessary local permits and approvals.

7. The discharge of chemicals (i.e., aqueous nitrates) as part of the pilot study shall not adversely affect any water supplies.

Crompton shall initiate the pilot study activities, as conditioned above, within 90 days of the date of this approval. If any current or anticipated delay is caused by events beyond the control of Crompton, the Department shall be notified in writing within 10 calendar days of such event. Crompton shall precisely describe the cause of the delay and request an extension. Increases in the costs or expenses incurred in fulfilling the requirements outlined herein shall not be considered a basis for an extension.

If you have any questions concerning this permit-by-rule authorization, please feel free to contact me directly at (609) 633-1478 or email at *tconti@dep.state.nj.us*.

Sincerely,

Patricia A. Conti

Patricia A. Conti, Case Manager
Bureau of Case Management

c: Andrew Marinucci, NJDEP/BEERA
Dave Kaplan, NJDEP/BGWPA
Chris Kanakis, NJDEP/BCM